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A Field Trial of D.D.T and Gamexane (666) in the Control of Sheep Myiasis*

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Myiasis, or maggoting as it is popularly called, is one of the chief limiting factors in the size and management of flocks of sheep, particularly in the case of lowland flocks. The sheep maggot-fly is active throughout the summer and early autumn with resultant calls upon farm labour when this is urgently needed for the essential tasks of haymaking and harvest. Attempts to control fly strike have, for many years, been based upon the use of arsenic as a toxic agent in the form of a dip. Arsenic, when used alone or when combined with crutching to reduce faecal contamination in the region of the tail, has not proved satisfactory because the period of protection it gives is too short to be of value.

Cragg (1945) indicated that D.D.T. should prove of considerable value in the control of myiasis in sheep and showed that this substance, when present in the fleece, prevents *Lucilia sericata* completing the act of oviposition upon its host. MacLeod (1943), in a survey of sheep myiasis in Britain, demonstrated that this fly is responsible for the great majority of sheep maggot-fly strikes in central Wales. In 59 cases of this disease in this area *L. sericata* was isolated on 58 occasions and *L. caesar* once.

In view of these facts it was felt desirable to test out D.D.T. and 666 (Gammexane, I.C.I.) on a field scale in the Mid-Wales province. For this purpose D.D.T. in an organic solvent (solvent naphtha) and a small amount of 666 as a dispersible powder were obtained. They were used in the form of dips of a concentration, when diluted, of 0·5 per cent. D.D.T. and 1·0 per cent. 666 respectively. Check analyses of the D.D.T. content of the diluted dips in the baths showed that the desired concentration of approximately 0·5 per cent. was attained and could be maintained at this level by replenishment after the passage of every 50 sheep through the dip. Wherever possible a group of sheep dipped in an arsenical dip and a group of undipped sheep were run as controls with the D.D.T. dipped and the 666 dipped groups.

Nine flocks in Mid-Wales were used in these trials, distributed as follows: three in Breconshire, four in Cardiganshire and two in Pembrokeshire. The breeds of sheep dipped included Welsh, Welsh X Clun, Clun Forest, Kerry Hill and Half-bred. The total number of sheep involved in the trials was 3,092. So far as possible the sheep on each farm were dipped about a fortnight after shearing. As shearing dates varied from farm to farm and also because of the small size of the team of workers it was not possible to dip all the sheep on the same day. Two factors, *viz.*, the inability to dip upon the same date and the wide distribution of the farms, included in the trial, throughout three counties, resulted in the introduction of differences in weather conditions as from farm to farm over the periods of observation, which themselves were not coincident. These variations have made the results difficult to interpret. At the same time it is believed that the large number of animals used evens out to some extent the effect of such variations. In any case any commercial dip, to be efficient, must be effective under such varying conditions.

Results

For convenience, the results are expressed in tabular form (Tables I and II) and are summarized in Fig. 1. The results obtained on Farm No. 3, which is one attached to the Welsh Plant Breeding Station of the University College of Wales, Aberystwyth, are given in detail as the conditions under which the animals were kept could be more easily controlled than on any of the other eight farms participating in the trials.

* Presented at a Staff Conference of the Department of Animal Health, University College of Wales, Aberystwyth, on October 28th, 1945.

TABLE I

TOTAL AND PERCENTAGE STRIKES IN THE FOUR GROUPS (D.D.T., 666, ARSENIC, AND CONTROL) AND THE MEAN TIME, IN DAYS AFTER THE DATE OF DIPPING, AT WHICH STRIKES OCCURRED. (PERIOD OF OBSERVATION, 33 DAYS)

Location	No. of sheep dipped	No. of strikes	No. of strikes × period (in days) after dipping
D.D.T.			
Farm No. 1	100	0	0
„ 2	388	15	431
„ 3	59	0	0
„ 4	287	0	0
„ 5	308	5	116
„ 6	189	0	0
„ 7	185	0	0
„ 8	60	0	0
„ 9	200	0	0
Totals	1,776	20	547
		1·1 per cent.	Mean 27·4 days
666			
Farm No. 1	97	2	50
„ 3	60	1	30
„ 6	99	1	26
Totals	256	4	106
		1·6 per cent.	Mean 26·5 days
Arsenic			
Farm No. 1	100	0	0
„ 4	264	15	316
„ 6	122	3	82
„ 7	81	0	0
Totals	567	18	398
		3·2 per cent.	Mean 22·1 days
Controls			
Farm No. 5	160	0	0
„ 1	67	9	269
„ 2	100	23	380
„ 3	59	6	109
„ 4	65	0	0
„ 7	42	0	0
Totals	493	38	758
		7·7 per cent.	Mean 19·9 days

TABLE II

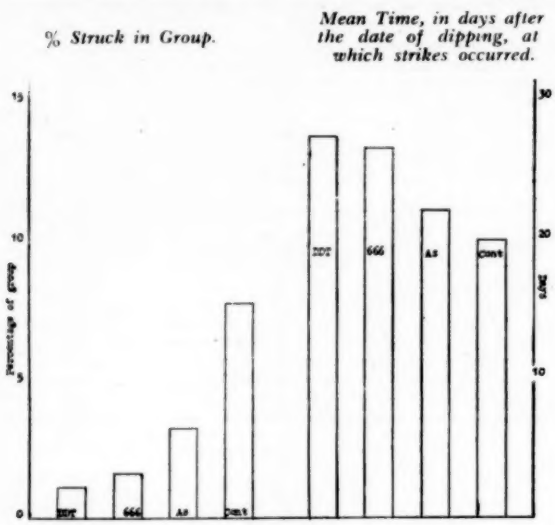
DETAILS OF RESULTS ON FARM NO. 3. PERIOD OF OBSERVATION, 50 DAYS

D.D.T.		
20 dry ewes	*Strikes* 1 after 43 days	
17 ewes		
22 lambs		
59		
666		
20 dry ewes	*Strikes* 2	
17 ewes	1 after 29 days	
23 lambs	1 „ 50 „	
60		
Controls (undipped)		
20 dry ewes	*Strikes* 9	
17 ewes	1 after 4	
22 lambs	1 „ 6	
	1 „ 11	
59	1 „ 24	days from the date of dipping
	2 „ 29	
	1 „ 37	
	1 „ 40	
	1 „ 41	
Percentage Strikes	*Average Time after Dipping*	
D.D.T. 1·7	43	
666 3·3	39·5	days
Controls 15·3	24·5	

FIG. 1

FIELD TRIALS ON THE CONTROL OF SHEEP MAGGOT FLY, U.C.W., ABERYSTYTH. SUMMER, 1945

Means of results of dippings on nine farms calculated on the basis of observations made up to the 33rd day after dipping.



DISCUSSION

An examination of the results obtained in this trial at once shows certain difficulties in their assessment. They reveal a percentage strike of 7·7 and 3·2 in the undipped and in the arsenic dipped control groups respectively and the general impression which may be given by these results is that D.D.T. and 666 are not of much greater value than arsenic, which of course may be perfectly true. On the other hand, these figures (7·7 per cent. and 3·6 per cent.) are lower than those which are regarded as within the normal range from year to year for this part of Wales; figures as low as these would be expected only in the years of lowest incidence. It is possible, therefore, that some factor has influenced these figures, reducing them below the normal range expected. In searching for an explanation of these subnormal figures, enquiries revealed that the number of strikes which had occurred in the summer of 1945 in flocks on farms adjacent to those on which the trials were conducted was considerably higher than 7·7 per cent. Two suggestions may be offered for the cause of this low incidence in the control groups. The first is that, as a result of its contact with the D.D.T. treated fleece during attempts at oviposition, the female *L. seriata* is killed and so prevented from striking another sheep as it might do in the normal course of events. The second suggestion is that some of the D.D.T. is transferred by contact from animals in the D.D.T. group to those in the control group, after dipping. The mean time when strikes occurred after the date of dipping in the control groups is relatively long and the same explanations for this lengthy interval can be offered, *i.e.*, that the D.D.T. and 666 treated groups influenced the time at which strikes took place in the arsenic and the untreated groups. If these suggestions be accepted as valid explanations of the low rate of strikes in the arsenic dipped and the undipped controls then D.D.T. and 666 can be regarded as extremely promising anti-myiasis dips. On Farm No. 3 the three groups selected were roughly similar in type and age of animals and were run under similar conditions. It will be noted that during the period of observation, in this case 50 days, 1·7 per cent. of the 59 animals in the D.D.T. group, 3·3 per cent. of the 60 animals in the 666 group, and 15·3 per cent. of the 59 undipped controls were struck. The first strike occurred in the D.D.T. group 43 days after dipping, that in the 666 group took place 29 days after dipping, whereas an animal in the undipped control group was struck as early as the fourth day after the date of dipping. The value of both D.D.T. and 666 in the control of myiasis was well demonstrated upon this farm.

The five strikes which occurred in the 308 sheep dipped in D.D.T. on Farm No. 5 all occurred in the region of the tail on lambs which were suffering from diarrhoea. This would indicate that D.D.T. will not protect lambs, which are scouring, against sheep maggot-fly strike.

Before D.D.T. can become a valuable commercial sheep-blowfly dip the solvents now used must be improved upon. In all the groups dipped in D.D.T. some degree of toxicity was apparent, the symptoms seen being those of skin irritation and intoxication. Generally speaking, the symptoms were most marked amongst the first dozen sheep which passed through either a bath of fresh D.D.T. emulsion or after the bath had been replenished with D.D.T. and, with the exception of one flock, the symptoms passed off in a matter of a few minutes. In this exceptional case the bath was situated close to a wood and the dipping took place on a warm day with no wind. This may have resulted in the collection, in the immediate vicinity of the bath, of a relatively high concentration of the fumes of the solvent; the sheep in this flock were lying about for periods of 20 to 30 minutes. No sheep out of the 1,776 dipped in D.D.T. died but the symptoms, when seen for the first time, are alarming and would result in a refusal, upon the part of many farmers, to use such a dip. When tested alone the solvent used gave rise to similar symptoms; it is believed, therefore, that the solvent was responsible for the undesirable feature noted in connection with the D.D.T. dip.

The results obtained with 666 were very similar to those obtained with D.D.T. but the number of sheep dipped with 666 was small and the figures are not strictly comparable. No undesirable symptoms were seen in any sheep dipped in 666.

General Conclusions from the D.D.T. Trial

(1) D.D.T. is more effective for the control of myiasis than arsenic which has been widely used in the past, *i.e.*, a greater percentage of sheep dipped in D.D.T. will remain free from strike than of sheep dipped in arsenic when observed for the same period. Under average conditions of management and the weather conditions prevailing during the period of observation D.D.T. prevented strikes occurring for approximately 27 days.

(2) D.D.T. will not prevent the striking of dirty sheep (contaminated with faecal material in the region of the tail) and therefore it should be combined with crutching when necessary.

(3) There is some evidence in the results obtained to indicate that D.D.T. reduces the number of strikes in undipped control sheep running with a group of D.D.T. dipped sheep in that the observed strikes in the controls were lower than in sheep on neighbouring farms. The farmers concerned commented on the lower incidence of strike occurring in their flocks than in previous years.

Acknowledgments.—We wish to express our indebtedness to the farmers and the War Executive Committees whose flocks were placed at our disposal. We also wish to place on record our thanks to Messrs. Geigy, Ltd., Technical Products Ltd., and Messrs. Boots Ltd., for the supplies of D.D.T. and to the last-named for the supply of 666.

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WEEKLY WISDOM

". . . There is a very curious property of words which often makes them unsuitable to serve as scientific symbols for real occurrences and things. This is their ability, to arouse feeling and emotion, in addition to the feeling or emotion aroused by the thing for which the symbol stands. . . . For example, the words 'Mother' and 'Ma' are symbols for exactly the same person. If an orator were making a speech and referred to 'Mother's day,' he could count on the word 'Mother' arousing respect and reverence in his audience. If, however, he talked about 'Ma's day,' he would arouse quite different feelings and emotions. . . . While not designed to improve the clarity of our thinking or our ability to understand, symbols arousing our emotional associations still have their place. But their place is not science. When we want to get at the truth we are much more likely to succeed if we use symbols which carry no more emotional tinge than X and Y."—Doctor in the Making, by A. W. HAM and M. D. SALTER (Medical Publications, Ltd., London).

* * * * *

Recent experimental work has shown that phenothiazine inhibits the growth of tubercle bacilli *in vitro* in high dilution. In the presence of serum, the bacteriostatic effect was diminished, but still significant.—FREEDLANDER (*Pro. Soc. exp. Biol. Med.*).

CLINICAL COMMUNICATION

Acute Salt Poisoning in Poultry

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Introduction

A number of reports of acute salt poisoning in pigs and poultry have been recorded in the literature but attempts to reproduce the condition experimentally have given rather conflicting results. The experimental evidence does suggest, however, that poultry are able to withstand high concentrations of sodium chloride (NaCl) in dry food, provided that they have access to water. On the other hand, they appear to be very susceptible to relatively small doses in the drinking water. Salt given in a wet mash appears to have an intermediate effect, a given proportion being more toxic in wet mash than in dry while being less toxic than when given in the drinking water. From this it must be deduced that in the field, so far as poultry are concerned, the possibility of birds dying from the toxic effects of an excessive salt intake depends to a large extent on the form in which the salt is available, *i.e.*, whether dry, moist or in solution.

Workers in Illinois (Mitchell, Card & Carman, 1926) found that chicks could be reared from nine to 21 weeks on rations containing salt in a proportion of 8 per cent. without apparent ill-effects, while Tocher (1935) found that salt in the diet in a concentration greater than 3 per cent. proved deleterious, and over 7 per cent. fatal. Other experimental evidence suggests that the fowl is very susceptible to small doses of NaCl in the drinking water, 0·9 per cent. proving extremely toxic to chicks, in which water retention and marked renal changes result. (Heller, 1933; Selye, 1942; Blakemore & Worden, 1946.)

Edwards (1918) reported deaths in pigs and poultry fed with moistened floor sweepings of a bakery. An analysis of the sweepings showed 22 per cent. by weight of NaCl. An analysis of the crop contents of a dead fowl and duck showed a NaCl content of 7 per cent. and 1·75 per cent. respectively. No noteworthy changes were seen on *post-mortem* examination. In an attempt to reproduce the condition experimentally, two hens were put together in a pen and given access to 100 g. of the dry sweepings and one pint of cold water. The sweepings were eaten cautiously in small quantities interposed with copious draughts of the water. The sweepings were, in this way, cleared up and no ill-effects resulted. One bird, given a full feed of oats, followed by 20 g. of NaCl in 70 ml. of cold water directly into the crop, was found dead in the morning. No macroscopic lesions were seen and analysis showed the percentage of salt in the crop to be 3·5. Two pigeons given a salt solution of 3·33 g. and 4·5 g. per kg. body weight respectively into the crop succumbed. Chemical analysis of the crop contents showed the unabsorbed percentage of NaCl to be 0·76 and 0·73 respectively. In these cases, therefore, analysis of the crop contents could not have shown evidence of salt poisoning. From this writer's work the minimum lethal intake of NaCl in a bird of 3 to 5 lb. would appear to be between 3 and 4 g. per kg. body weight.

It is apparent, in view of their relative resistance to salt, that it is only exceptionally that poultry are likely to be exposed to the risk of salt poisoning. Such an exception is exemplified in the following account of acute salt poisoning and should serve as a warning against the indiscriminate distribution of residual brine on gardens, orchards, etc., to which poultry have access.

History

The poultry on the farm where the losses occurred were divided into three groups. Group A were confined in a small run, about ten yards by six yards, and consisted of two Golden Pheasants, two Silver Pheasants, one Peahen, three Bantams, one White Wyandotte (W.W.) hen and three W.W. pullets.

Group B, confined in a larger pen, consisted of one stag and five hen turkeys; twelve W.W. hens, nine W.W. pullets and one W.W. cockerel; two Rhode Island Red hens; four Bantam cocks and one Bantam hen, and six Silkies.

Group C consisted of the main farm poultry, *i.e.*, geese, ducks and fowl, and was on free range.

At 2 p.m. the residual brine, consisting only of NaCl from the salting of a pig, was sprinkled over the small pen, and in the large pen was placed in heaps around the base of various fruit trees. The birds were fed with grain between 3 and 3.30 p.m. At 5 p.m. one hen turkey in Group B was found on its side outside its house, obviously very ill and with a distended crop. It was taken into the farmhouse and given whisky and warm milk. The following morning it was found dead in a pool of clear liquid, while in Group A one pullet was found dead, the Golden Pheasant hen nearly dead and the Golden Pheasant cock very ill. The hen died at 10 a.m. and the cock at 12 a.m. Both Silver Pheasants were very ill, the cock dying 26 hours after exposure to the salt and the hen after 46 hours. The Peahen also was off colour but recovered later the same day. In Group B a Bantam cock and a Silkie cock were both dead in the hen house. The turkey stag was ill but later recovered. The W.W. cock came out and appeared normal, proceeding to eat, but developed symptoms an hour later and died within eight hours of the onset of symptoms. In Group C all the birds remained normal. These birds did not have access to the salt. At 11.30 a.m. all the residual salt was cleared from the ground.

Symptoms

The birds were affected in varying degree. Those badly affected lost the use of their legs, being apparently paralysed, whereas less severely affected birds could use their legs after an obvious effort but soon became recumbent again. Birds showing only slight symptoms, *e.g.*, the stag turkey and the peahen, sat huddled up on their perches but were sufficiently active to resist handling. In all cases there was a discharge of fluid from the beak. This could be readily massaged from the crop and in the majority of cases resembled a strong salt solution. In two cases the discharge consisted of a clear fluid containing specks of a whitish substance. The birds continually opened and closed their beaks as if gasping for breath, while in some cases the head and neck were drawn backward in a manner similar to that seen in opisthotonus of tetanus in the horse.

Post-mortem Findings

An examination of several of the dead birds failed to reveal any macroscopic lesions except in one case, where haemorrhagic areas were present in the liver. In all cases the crop was filled with grain from the afternoon feed. Bacteriological examination gave negative results.

Chemical Analyses

The following results were obtained on analysis:—

1. *Crop contents of dead pheasant No. 1.*

Total chloride per g. of contents ...	15·7 mg. (1·57%)
Total NaCl per g. of contents ...	25·8 mg. (2·58%)

2. *Various portions of intestinal tract pheasant No. 2.*

Portion of gut.	Total chloride per gramme of contents.	Total NaCl per gramme contents.
Crop	2·3 mg. (0·23%)	3·78 mg. (0·378%)
Proventriculus	4·4 mg. (0·44%)	7·17 mg. (0·717%)
Gizzard ...	3·8 mg. (0·38%)	6·25 mg. (0·625%)
Intestine ...	3·1 mg. (0·31%)	5·1 mg. (0·510%)

3. *Brine residue (as taken from the plots).*

Total chloride per g.	450 mg. (54%)
Pure NaCl per g.	608 mg. (60·8%)

The above figures must be interpreted in the light of the facts that before extraction and estimation of the chloride content the whole of the contents of the various parts of the digestive tract were weighed, and that grain, grit, etc., were the major items contributing to the weight. In the case of pheasant No. 1 the figure of 1·57 per cent. total chloride in the crop contents is conclusive proof of the ingestion of NaCl.

Discussion

The spreading of residual brine after the salting of pigs on to gardens, paths, etc., is a fairly common procedure but, as has been shown in this case, one fraught with danger if poultry have access to the area. Residual brine is of course moist when distributed and the experimental evidence suggests that, in this state, it is more toxic than dry salt. It is commonly believed that poultry will reject food containing a high concentration of salt, and in Edwards's (1918) experimental attempt to reproduce the disease, the two birds under control refused the proffered sweepings, containing 22 per cent. of common salt, for some time. In this case, however, there appears to be no doubt that the birds readily and very soon after its distribution consumed material containing, as shown by analysis, 61 per cent. of pure NaCl. The analytical findings from the various parts of the digestive tract give no true indication of the actual amount of salt ingested but the figures obtained for the concentration of salt in the crop contents of pheasant No. 1 do show conclusively that salt was consumed while the history can leave no doubt but that the deaths experienced on this farm were due to the toxic effects of the quantities ingested. An interesting feature is that great thirst and diarrhoea have been pronounced symptoms in all cases of acute salt poisoning in poultry referred to in the literature. In this case neither of these features was manifested.

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ABSTRACTS

[Narcosis in the Horse by the Intravenous Infusion of Chloral Hydrate. WRIGHT, J. G. (1944.) *Vet. J.* **100**. 135-141.]

The author has used chloral hydrate intravenously for narcosis in 70 horses during a period of two years. The animals varied in age from six months to over 20 years and in weight from four to 15½ cwt. A wide variety of operations were satisfactorily performed, using a dosage of 5 to 6 g. of chloral per cwt. body weight for light or medium horses and 4·5 to 5 g. for heavy horses. The severity and duration of the operation should also be considered in computing the dose.

Although administration in the standing position is best on humane grounds, the technique of intravenous injection is more satisfactory in the cast animal. Temperament of the animal and the space available for casting and operating should be considered when deciding which method to adopt.

When it is not possible to weigh the animal an estimate of body weight can be made from the following table:—

Ponies	4·5–8 cwt.
Cobs	9–11 cwt.
Cart colts—	
Yearlings	6–8 cwt.
Two-year olds	8–10·5 cwt.
Hunters	9–12 cwt.
Half-legged vanners	11–12·5 cwt.
Heavy vanners	13–15·5 cwt.

The computed amount of chloral, together with one-tenth of this amount of sodium chloride and of sodium citrate, are weighed out. The chloral is dissolved in tap water to make a 10 per cent. solution and the two salts are added. The solution is placed in a one-litre flask and sterilized by boiling. The needle recommended is 6 cm. long, with a bore of 2 mm. (11 B.W.G.), and preferably provided with a "grip" and also an adaptor fitted with a tap. A flask with inlet and outlet tubes and fitted with a metre length of 0·8 cm. diameter rubber tubing in which is inserted a glass window close to the adaptor of the needle is used and all apparatus is boiled before use.

The skin over the jugular is anaesthetized with 2 c.c. of 2 per cent. procaine, the needle is thrust into the skin and withdrawn until only about 1 cm. remains in the connective tissue over the vein, and the vein is then raised by digital pressure below the site of insertion of the needle. The needle is then thrust into the vein towards the head and some 2 cm. of needle is inserted into the vein. When blood flows freely from the needle pressure on the vein is released and the adaptor and tubing are fixed to the needle and the flask of chloral solution is lowered so that blood fills the glass window. If blood fails to flow past the window the tap is turned off and the adaptor disconnected and further attempts are made to get the needle into the lumen of the vein. When blood enters the window freely the flask is raised as high as possible and the chloral solution is allowed to run in so as to take about four minutes for 750 c.c. When smaller quantities are used the flask is held somewhat lower. Whenever there is any doubt as to whether the solution is entering the vein the flask should be lowered to see whether blood again flows down past the glass window.

As soon as the animal shows signs of falling the tap is turned off and the adaptor removed. Throughout injection the needle should be held firmly in the vein so that movements of the animal's neck will not dislodge it.

With cast animals the injection is much easier and the skin weal is not necessary. As before, the infusion is adjusted to take four to five minutes.

Narcosis is always quiet and is of medium depth with 4·5 to 5 g. per cwt. Skin sensation is not lost and in some cases the operation can be performed under local infiltration anaesthesia: in others the rest of the computed dose can be given after the animal is down. The full dose gives deep narcosis with relaxed tail, slow, regular, deep respiration, accelerated pulse (usually about 70), an active corneal reflex and slightly constricted pupils.

Acknowledgment.—To Dr. W. Charles Evans and Mr. R. A. Evans, B.SC., A.R.I.C., of the Biochemistry Section of the Department of Animal Health of this College, for the chemical analyses.

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The animal usually remains down about 1½ hours and is drowsy for a further four hours. Vigorous struggling occasionally takes place during the recovery period before the animal gets up and so the hobbles should be left on, particularly in confined quarters, until the animal makes obvious attempts to rise. No systemic toxic effects were seen nor was there any post-anaesthetic malaise. In two horses there were local reactions due to escape of chloral into the perivascular tissues, but in each case the vein remained patent. Three animals developed paralysis of a fore-limb, but this was ascribed to injury in casting or during recumbency.

The value of chloral hydrate is that it induces narcosis of sufficient depth for operations under local or regional anaesthesia, or alternatively greatly facilitates the supplementary use of inhalation anaesthetics. The use of chloral for general anaesthesia is unsatisfactory since the animal remains recumbent for too long.

E. G. W.

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[An Active Agent Isolated from Pigs Affected with Arthritis (Preliminary Report). MCNUTT, S. H., LEITH, T. S., and UNDERBJERG, G. K. (1945.) *Amer. J. vet. Res.* **6**. 247-251. (9 refs.).]

The authors isolated an active agent from affected joints of pigs by inoculation of exudate into seven-day-old chick embryos. Material taken from these reproduced arthritis in pigs by subcutaneous inoculation though laboratory animals were resistant to it. Pigs inoculated intraperitoneally showed a greater systemic response and, in addition to arthritis, developed peritonitis, pleurisy and sometimes pericarditis. The causative agent could not be demonstrated by the examination of stained preparations nor could it be grown on ordinary culture media. Preliminary experiments as to its filtrability were inconclusive.

A. W. G.

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[Fowl Paralysis: The Infectivity of Fowl Tissue Suspensions to Baby Chicks. ASPLIN, F. D. (1945.) *Poultry Science.* **24**. 379-381. (3 refs.).]

It has been shown that in Britain the injection into young chicks of extract from fowls affected with lymphomatosis produces lesions resembling those of bacillary white diarrhoea as an early pre-lymphomatous stage of fowl paralysis. The author obtained a similar agent from natural cases of fowl paralysis in the U.S.A. from four separate sources. The lesions produced in chicks were indistinguishable from those described in Britain and also the American agent, like the British, was sensitive to sulphonamides.

A. W. G.

Beta Haemolytic Streptococcus Infection in Dogs

[We reproduce below the contribution made by Mr. D. C. E. Danby in opening the discussion on Dr. Hare's paper to the Central Veterinary Society. Owing to an omission on the part of the Society this was not included in the report of the discussion published with the paper in our issue of April 20th.]

Mr. D. C. E. DANBY: Not only do we have to thank Dr. Hare for his excellent contribution, but we are indebted to him for putting before us such valuable information regarding the *Beta haemolytic streptococcus* infection in dogs which I know must have cost him much time and patience in his investigations. It has obviously been an uphill fight to get it even recognized as a possible causal factor of disease, and those of us who have been his disciples have had to pay dearly for our belief, but the battle has been well worth while.

I am of the opinion that we have this afternoon got *first* to prove or disprove that this B.H.S. is or is not a causal factor of disease, *secondly* to what extent it does produce the symptoms which are said to be due to it, and *lastly*, if it is in fact a cause of a disease, is there any better remedy than the vaccine treatment which Dr. Hare advises?

For two years I have in my own practice and whilst in the Army been deeply interested in the B.H.S. and I think I can put before you this afternoon certain points which will lead to an interesting discussion.

In the Army I carried on and increased my knowledge on this subject and I was assisted in my endeavours to deal with this disease by work carried out at the Royal Army Veterinary Corps Laboratories. Although their vaccine was perhaps not similar to Dr. Hare's, I did find that their B.H.S. stock and autogenous vaccines were extremely beneficial and I doubt very much whether I should have obtained the same success without them.

Is there, therefore, any alternative treatment which can be compared with vaccine therapy?

No progress will be made without the support of the clinician in these matters, but I can well understand why the average veterinary surgeon who is practising some distance from the laboratory

has been disappointed in his efforts to tackle this complaint when the swabs which he sends for examination are sometimes reported by the pathologist to be either sterile or contaminated or negative. In order to prove his case he has to reswab, which in many instances would involve extra expense and trouble, only to get a second similar report. In transit from his surgery to the laboratory the swabs may dry and negative results may follow. We have cases, genuine cases, positive B.H.S. cases, which fail to be cured by treatment. No wonder we do not feel disposed to carry on with investigations and possible treatment with no guarantee of a permanent cure, and to the average layman little or no better results than one would get with local and topical applications.

The subject is far too wide to deal with all the many conditions which we believe to be associated with the disease. I think the most important thing to remember is that we are dealing with a toxaemia.

I believe that the *Beta haemolytic streptococcus* becomes pathological when in company with other yet unknown pathological organisms, hence the failures so often met with when treating for this complaint specifically. I am now alluding chiefly to the skin diseases which I think probably exercise the minds of the practitioners more frequently than do the other aspects of the disease. I believe that the B.H.S. is responsible for lowering the resistance of the skin to secondary infections from *without, e.g.,* non-haemolytic organisms present in so-called wet eczema. Experience has shown that the B.H.S. in the large majority of cases is one of the predominant organisms.

Now by attacking the B.H.S. it must be admitted that one is pursuing the rational course although no spectacular results may be forthcoming, and there is no doubt whatever that by use of repeated courses of treatment, say at intervals of four to six months, one can avoid regular recurrences of skin diseases. It is also well known and established by those who have had the experience that you can cut short and prevent the spread of such conditions as pustular dermatitis by administration of vaccine. Of course the vaccine does not do everything and a great deal of work must be carried out on the skin itself, *e.g.,* baths and massage, attention to oral hygiene, etc.

I had a very good opportunity at the War Dogs Training School to investigate certain common complaints and I believe that the chronic toxaemias are to be found in:—

1. Dogs which have perhaps from puppyhood been at some time or other affected with an acute catarrh with tonsillitis, rhinitis and conjunctivitis, and even respiratory complications.
2. Nervous symptoms such as hysteria and fits (incidentally very often I have been able to prove almost conclusively that these two conditions are associated with B.H.S. and bowel parasites).
3. Periodic vomiting. Diarrhoea with meloena and mucus in the faeces.
4. Skin diseases, *e.g.,* erythema, pruritus, pustular and exfoliative dermatitis and alopecia; also otorrhoea.
5. Nephritis.
6. Lethargy.

And of course by all those who have dealings with breeding kennels, sterility and abortion are presumed to be caused by the B.H.S.

I expect I shall get a lot of criticism for alluding to the early febrile and the catarrhal stages of this disease and I suspect that some of you will suggest that what I consider to be a B.H.S. catarrhal infection is in fact virus distemper, and if so, there must arise doubts as to the efficacy of the Laidlaw-Dunkin method of immunization.

My figures are taken from 2,054 dogs which entered the School during the period under review and it may be assumed that only 1,000 of those remained long enough for investigation (the remainder being unsuitable for training).

Of the six classes referred to above 428 were of the class 1 type, 183 class 2, 404 class 3, and 231 (of which over 100 were positive to B.H.S.) of class 4 type.

All these cases were treated with either autogenous or stock vaccines and the most spectacular results were those in the skin and nervous sections.

Had my brother officer, Lt. Biddis, been here now he would corroborate all I have to say, and it was hoped that even more enlightening figures would have been available, as there are to my knowledge at least a further 3,000 recorded, but you can imagine the immense task involved in analysing and tabulating all these cases.

If what we have said be substantiated, then I suggest that this disease is in every way as serious as distemper; perhaps the mortality rate is not so high, but we certainly have a morbidity rate far higher than anything else yet known in the canine world in this country. I am of the opinion, therefore, that some effort should be made by the Royal College of Veterinary Surgeons to take an active step towards trying to clean up the obvious places of infection and to reduce, as far as is possible, this menace which is slowly undermining the health of the dogs in this country.

Questions and Answers

"Questions and Answers" will be published on alternate weeks.

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Prophylaxis and Treatment of Leptospiral Infection in the Dog

Q. CLIX.—*I should be most grateful if you could advise me as to prophylaxis and treatment of leptospiral infection in the dog. Having read the report on canine leptospirosis in Glasgow, by R. D. Stuart, published in "The Veterinary Record" of March 23rd, it would seem likely that this disease is probably more common than is generally recognized and that a number of the cases attributed to a streptococcal infection are, in fact, due to leptospira. I refer in particular to the nephritic cases that are so commonly met in dogs past middle age.*

A.—Weil's disease (or leptospiral jaundice) is a haemolytic type of jaundice produced by invasion of the blood stream by a spirochaete (*S. icterohaemorrhagica*) and transmitted by the urine of the brown rat. The spirochaetes are often found in the kidneys, where they set up a nephritis. The *S. canicola*, which according to some authorities is responsible for canine typhus (Stuttgart), also affects the kidneys, but it has to be remembered that nephritis is common enough in old dogs which exhibit no symptoms whatever of leptospirosis.

Hyperimmune leptospiral serum is the best available treatment and, whilst not wholly effective, it certainly may reduce the death-rate from about 95 per cent. to about 45 per cent. The earlier the serum is administered the better the effect, but dosage should be adequate, *i.e.,* from 10 to 20 c.c. injected parenterally *up to the fourth day after infection.* Repetition may be necessary. The difficulty about this, however, is that within four days of infection, a diagnosis of leptospiral jaundice has rarely been made as in the early days of the disease the symptoms are too vague. It is only when icterus has appeared that one's suspicions of the true aetiology are aroused; and by that time (usually about a week) the best chances of success from the use of anti-serum have gone. Further treatment is symptomatic and consists of allaying emesis, countering of depression or collapse, prevention of dehydration and the combating of uraemia. Subcutaneous injections of Coagulen often succeed in arresting the profuse intestinal haemorrhage. In early Stuttgart this agent has given approximately 60 per cent. of success unaided. For infectious icterus of dogs Bouchet recommends subcutaneous injections of 20 g. of a solution containing 2 g. each of caffein and sodium benzoate and 9 g. of sodium chlorate in 1,000 g. distilled water at body heat.

The prognosis is very grave in all cases. Leptospiral serum can of course be administered prophylactically.

Contagious Venereal Granuloma

Q. CLX.—*What treatment do you advise for multiple tumours of the vagina of a bitch, presumed to be contagious venereal granulomata? Is there any non-contagious tumour (apart from fibromata) which might be confused with the above condition? Would the owner of a bitch so infected be in a position to claim damages from the owner of the dog which mated her?*

A.—The writer does not recall seeing more than one or at the most two cases of venereal granuloma in roughly the last ten years and his impression, rightly or wrongly, has been that for some reason the condition is much less prevalent to-day than, for example, in the early 1920's when, he believes, it was quite commonly met in dogs. In the writer's experience venereal granuloma clinically is unlikely to be confused with any other vaginal tumour at any stage after the submucosal. The tumour's fragile, haemorrhagic character, and almost invariable multiplicity, differentiates it from the vaginal hyperplasia of oestrus and the common "fibroid" or even leiomyomata. Usually the multiplicity of the lesions makes surgical interference as impracticable as in oral papillomata, but cauterization sometimes could be employed. X-ray treatment would not be impracticable in certain cases, but as spontaneous recovery is quite likely, isolation and observation of the affected bitch for a month or two would not be unreasonable.

Histological examination ought to be made in order that, as far as possible, the diagnosis of lympho-sarcoma can be confirmed. Nothing could prevent the owner of an infected bitch claiming damages from the owner of the dog believed to have communicated the disease, but, on the prospects of successful litigation, clearly a legal opinion would be necessary. The writer feels the questioner could do no better than refer to the most informative chapter on transmissible lympho-sarcoma of dogs in "Neoplasms of the Domesticated Animals" (Mayo Clinic Monograph) by W. H. Feldman.

Chloral Hydrate Anaesthesia in Large Animals

Q. CLXI.—*What is the technique of chloral hydrate anaesthesia in large animals? What are the contra-indications, the duration of anaesthesia and the margin between a safe and a lethal dose?*

A.—A satisfactorily informative answer necessitates the inclusion of details as to administration. For this reason we are publishing in the appropriate section of this issue an abstract of the article "Narcosis in the Horse by the Intravenous Infusion of Chloral Hydrate," contributed by Professor J. G. Wright to *The Veterinary Journal* (1944. **100**. 135-141), to which abstract readers are referred. —*Editor.*

QUESTIONS IN PARLIAMENT

Veterinary Officers (Salaries)

Colonel Ropner asked the Minister of Agriculture the reason for the delay in adjusting the salaries of his veterinary staff as in the case of the Scientific Civil Service as a whole; and by what date he anticipates that the veterinary staff will have their salaries suitably aligned with other members of that Service.

Mr. T. Williams: It has been necessary to consider the salary scales of Veterinary Officers in conjunction not only with those proposed in the White Paper on the Scientific Civil Servants, but also with the scales of other professional and technical staffs of Government Departments which are under review. Definite proposals have now been communicated to representatives of the staff and of the National Veterinary Medical Association and I hope that it will be possible for new scales to be put into operation at an early date.

. . . . . .

Feeding-Stuffs Reduction and the Milk Supply

Mr. Hurd: Will the Minister of Agriculture now state the probable rations of concentrated feeding-stuffs that will be provided for dairy cows and other classes of livestock next winter.

Mr. T. Williams: Economies in the consumption of wheat and flour in the United Kingdom, the diversion of barley and maize for human consumption in famine-threatened countries, and the loss of Indian supplies of oilseeds will reduce substantially supplies of rationed feeding-stuffs during the next twelve months. On the best estimates we can make, it is now clear that it will be impossible to maintain next winter the ration scales that were in operation in the past winter. The deficit between estimated supplies and requirements at present rates is sufficiently large to involve appreciable reductions in rations for all classes of stock, including dairy cows and domestic pigs and poultry, which have hitherto been unaffected by the worldwide shortage of supplies. Details of the new ration scales for the next winter rationing period are being finally worked out and will be announced at a very early date.

Mr. R. S. Hudson: In view of this serious statement, can the right hon. gentleman say what sort of drop in production is likely to ensue, and in particular of milk?

Mr. Williams: I should have to be a Solomon to attempt to make a prophecy of that description. I fear it may be sizeable, but I hope that it will not be nearly so bad as the previous cuts have been.

Drastic Cuts in October

[In an announcement issued as we go to Press the Ministers concerned state that as a result of the measures which have had to be taken to meet the acute world shortage of food, the supplies of both protein and cereal feeding-stuffs available for issue under the rationing scheme for animal feeding-stuffs during the period October, 1946, to April, 1947, will be considerably less than were available in the past winter. The percentage reductions, which will affect all the main classes of livestock except working horses, are roughly as follows: 40 per cent. in the rations of dairy herds and 25 per cent. for calves. The cut for commercial pigs and poultry will be 50 to 60 per cent. in the case of smaller holdings, and higher for those with larger holdings, rising even to 100 per cent. in the case of the largest holdings. The present domestic poultry keepers' ration of 5 lb. of balancer meal a month a bird will be reduced to 2 lb.]

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Medical Libraries in Europe.—**A sum not exceeding £61,725 has been put at the disposal of the Royal Society of Medicine by the Rockefeller Foundation to establish a Central Medical Library Bureau which will help in the rehabilitation of medical libraries in Europe.**

NOTES AND NEWS

Diary of Events

June 12th.—Meeting of the Editorial Committee. N.V.M.A., 2.30 p.m.

June 13th.—Summer Meeting of the South-Eastern Division, N.V.M.A., at the Wellcome Research Station, Ely Grange, Frant, Nr. Tunbridge Wells, 11 a.m.

June 14th.—Meeting of the North of Ireland Division, N.V.M.A., at Stormont, Belfast, 2.45 p.m.

The Following is the Programme for N.V.M.A. Council and Committee Meetings in June in Edinburgh

Wednesday, June 19th

11 a.m.—Finance and General Purposes Committee.

2.30 p.m.—Sub-committee on First Aid Handbook.

Thursday, June 20th

10 a.m.—Appointments Committee.

11.30 a.m.—Organising Committee.

2.15 p.m.—Joint Veterinary Officers, Public Health and Parliamentary Committee.

Friday, June 21st

11 a.m.—Council Meeting.

Would members wishing accommodation reserved in Edinburgh hotels notify the General Secretary, N.V.M.A., 36, Gordon Square, W.C.1, *without delay*, giving dates.

June 27th.—R.C.V.S. Written Examinations begin.

June 27th.—Meeting of the Derbyshire Division, N.V.M.A., at the Midland Agricultural College, Sutton Bonington, 2 p.m.

July 1st.—R.C.V.S. Oral and Practical Examinations commence.

Sept. 23rd-27th inclusive.—Annual Meeting and Conference of the National Veterinary Medical Association of Great Britain and Ireland, to be held in London.

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R.C.V.S. COUNCIL ELECTION RESULT

The following result of the Royal College of Veterinary Surgeons' Council Election was declared at the Annual General Meeting of the Royal College, held at 10, Red Lion Square, London, W.C.1, on Tuesday last :—

Name	*Votes*
J. G. Wright	851
W. R. Wooldridge	755
G. P. Male	754
A. A. Forsyth	719
W. C. Miller	690
G. F. Boddie	676
A. Spicer	617
J. T. Edwards	570
(The above-named were declared elected.)	
H. Burrow	520
A. Olver	457
J. D. Peele	455
T. Hicks	435
J. Carmichael	429
A. J. Wright	376

Representative of Eire

It was also announced that Principal T. G. Browne, of the Royal Veterinary College of Ireland, had been elected as the representative of Eire on the Council.

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PERSONAL

Marriage.—Noble—Bettinson.—On May 18th, 1946, at St. Mary Magdalene's Church, Fleet, Cambs., William Alexander Noble, M.R.C.V.S., only son of Mr. and Mrs. W. R. Noble, of Symington, Kilmarnock, to Elizabeth Mary Bettinson, elder daughter of Mr. and Mrs. J. C. Bettinson, of Millhouse, Fleet. The bridegroom is a partner in the firm of Messrs. Creasey and Noble, veterinary surgeons at March, Long Sutton and Upwell, and the best man was Mr. Robert Muir, M.R.C.V.S.

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R.C.V.S. OBITUARY

Hamilton, Robert, 911, Richmond Street, Victoria, B.C., Canada. Graduated Glasgow, May 24th, 1888. Died April 22nd, 1946.

JAMES, William Henry, D.S.O., Major late R.A.V.C., "Hill View," Arcot Road, Sidmouth, Devon. Graduated London, May 22nd, 1891. Died May 27th, 1946; aged 78 years.

MAJOR W. H. JAMES, D.S.O., M.R.C.V.S.

Major William Henry James, D.S.O., whose death we record above with much regret, had been in poor health since 1942 and on April 3rd, 1946, sustained a fractured hip, as a result of a fall, from which he failed to recover.

The son of the late Sydney James, M.R.C.V.S., of Frome, Somerset, Major James, after graduation, and following various assistantships, practised with his father at Frome till the latter's death in 1907. He carried on the practice there till 1911, when he went to British Columbia.

Major James served in the R.A.V.C. from 1914 to 1918, attaining the rank of Major and being awarded the D.S.O. He practised at Sidmouth from 1922—from 1942 in partnership with Mr. P. G. Steel, M.R.C.V.S.

Mrs. James (*née* Edith Ann Wall, of Frome) died in 1913. There are two daughters and a son, to whom deep sympathy is extended in their loss.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

FOOT-AND-MOUTH DISEASE:

Lancs.—North Road Piggeries, Blackburn, Lancs. (May 30th).

SWINE FEVER:

Lanarks.—Holm Farm, Garlsherrie, Coatbridge, Lanarkshire (June 1st).

Lincs., Kesteven.—4, Council Houses, Eagle Lane, Thorpe-on-the-Hill, Lincoln (May 29th).

Norfolk.—Field premises, Crostwick Lane, Spixworth, Norwich (June 3rd).

Northants.—Home Farm, Spratton, Northampton (May 30th); Pigstye near Blacksmith's Shop, Shutlanger, Towcester, Northants (May 30th); Windmill Farm, Church Street, Burton Latimer, Kettering, Northants (May 31st).

Yorks. (N.R.).—1, Green Lane, Whitby, Yorks. (June 3rd).

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Sir Herbert Howard, formerly Inspector-General of Forests to the Government of India, and President of the Forest Research Institute, Dehra Dun, has been appointed to succeed Sir David Chadwick as Secretary to the Executive Council of the Imperial Agricultural Bureaux when he retires later in the year.

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DEFINITION OF "A SPECIALIST"

The Minister of Health has indicated to the House of Commons Standing Committee on the National Health Service Bill his intention to seek from the medical profession a definition of a specialist. There was, said Mr. Bevan, a great difficulty when the general practitioner claimed to be a specialist. He could not say in the Bill that any general practitioner who called himself a specialist should be treated as a specialist. He was proposing to ask the Central Advisory Medical Committee, as the central council would not be established for some time, what body should advise him about who were to be defined as specialists for the purposes of the scheme. In the meantime many of the general practitioners who had shown by qualifications and experience that they could properly be described as specialists could be used for that purpose until the specialist service had been properly established.

STATE AND QUALIFICATIONS

Replying to a number of questions about the services to be provided, Mr. Bevan said he had received representations from a considerable number of bodies of varying degrees of orthodoxy concerning the merits of their own particular forms of treatment. All he could do was to provide the services that Parliament said were to be provided. Those were services the medical profession declared to be necessary. He must accept the professional examinations.

Many bodies placed unnecessary limitations on themselves, because practitioners would be perfectly entitled to give their particular form of therapy if they had the general qualifications. What he could not do was to say that in the State service they would be able to give any of those forms of therapy by practitioners who had not qualified in the normal way.

SOCIETY FOR ENDOCRINOLOGY

Contributors to the *Journal of Endocrinology* have recently taken the initiative in the formation of a Society for Endocrinology, the object of which is to promote the advance of endocrinology by observational, experimental and clinical studies.

The Society was founded at an Inaugural Meeting held at Guy's Hospital on April 26th, 1946, when the following elections were made: Hon. Secretary, Dr. S. J. Folley; Hon. Treasurer, Dr. C. W. Emmens; Hon. Editor of the Society's Proceedings, Professor S. Zuckerman; Members of Committee, Dr. P. M. F. Bishop, Dr. A. S. Parkes, Mr. P. C. Williams, Professor F. G. Young.

In addition to ordinary meetings at which original scientific communications will be presented, the Society hopes to organize from time to time Symposia on selected topics in the field of endocrinology.

The address of the Hon. Secretary is: c/o The National Institute for Research in Dairying, Shinfield, Nr. Reading.

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"PASTEURIZATION DEFERRED"

After summarizing editorially, under the above heading, the recent debate in the House of Lords (see *Vet. Rec.* April 20th, pp. 185-189), *The British Medical Journal* adds: "In the *Journal* of March 9th we published a table showing the death rates from abdominal tuberculosis between 1921 and 1944 in children under five years of age in London, county boroughs, urban districts, and rural districts. For comparative purposes these deaths give the best indication of the prevalence of bovine disease. The figures, supplied by the Registrar-General, show that the death rates have continuously declined in each year. The figures showed that in 1944 the rate for London was only one-tenth of that in rural districts, and that, compared with 1921, the 1944 rate in London was one-twenty-third, and that of the rural districts one-quarter. In other words, the decline in London has been much steeper than that in rural districts. The actual numbers of deaths in 1944 were: London one, county boroughs 32, urban districts 42, and rural districts 37. By 1938 we may observe that in London over 98 per cent. of the milk was pasteurized, and in county boroughs over 50 per cent. It seems undeniable, therefore, that pasteurization of milk is an important factor in controlling the incidence of mortality from bovine tuberculosis, and that the protection of the interests of the small producer-retailers means a lack of protection for the health of those who consume the milk supplied by them. If at short notice under stress we can train technicians and produce equipment for killing other people with explosives, it seems anomalous that the production of pasteurization machinery and the training of technicians should seem to be such an insuperable obstacle in the way of pasteurizing all the milk consumed in this country until that time when we can be sure of drinking milk made safe by other methods."

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ROYAL VETERINARY COLLEGE GYMKHANA

The increasing interest in riding being taken by students was shown by the number of competitors who entered for the first post-war R.V.C. Gymkhana. This was held at Streatley on May 29th at Wynders Riding Stables by kind permission of Lt.-Col. and Mrs. Brocklebank, who acted as judges. Although enthusiasm was in many cases more evident than skill, it is hoped that, with adequate support, the standard may be raised in the near future. The arrangements were directed by Miss Pat Turner, and M. Ashton, M.C., was the starter. The results were:—

I.—Novice Obstacle: O. Swarbrick.
II.—Novice Jumping: A. D. Cousens.
III.—Open Jumping: J. Hicks.
IV.—Open Obstacle: H. N. Metivier.
V.—Open Gretna Green: Miss M. Lovegrove and P. D. S. Pugh, M.B.E., M.C.

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THE SOIL ASSOCIATION

"A newcomer to the field of agricultural research is the Soil Association, which held its first meeting last week," reports *The Observer* of Sunday last and continues: "It has Lady Eve Balfour as president, Lord Teviot as vice-president, and includes Dr. Scott Williamson and Dr. Innes Pearse, founders of the Peckham Health Centre, on its council. The belief behind it is that industrial civilization has tended to exploit the soil by neglecting the biological laws responsible for its health and fertility as a living organism. The Association will promote research into all aspects of the subject, including the vexed question of chemical versus natural manures, and will serve also as an information centre on composting, the supply of whole-wheat flour, and all practices which aim at the highest health standards in farming and food. The address for enquiries is 8F, Hyde Park Mansions, N.W.1."

CLASSICAL EDUCATION

In his presidential address to the Classical Association at Exeter, Sir Frank Fletcher said it was an essential feature of a classical education that it brought the student into direct personal contact with the greatest minds of the past. He did not merely read about them: spirit communicated with spirit and mind with mind across the gulf of centuries. The classical scholar would not merely, like the historian, read about great men of the past and their actions; he could speak with them face to face. Nor would he be dependent on translations, however brilliant, for his knowledge of the immortal writers whose noble thoughts were wedded to noble words in a union which no man could put asunder. Translations of great language might be a help to the understanding of the original: they could never be a substitute for it. To the lifelong interest and fuller pleasure which this direct contact could bring, speaker after speaker in their association and its branches had borne witness.

It was a matter for regret that in the development of secondary education which had taken place since 1902 premature specialization in science and mathematics had tended to crowd out literary subjects, and the latter, when provided, had too often been of a non-classical type. He could not believe that modern history or modern languages or specialized English could provide either the foundations for subsequent learning or the key to wider enjoyment that our generation gained from the older learning.

He observed how relevant to the present day were some of the reflections made by the scholars and public men who addressed the association in the years following the first world war. At Birmingham in 1922 Mr. Asquith had said: "I would far rather trust for better feelings among the more civilized races of mankind to the humanities than to a more extensive knowledge of the exact composition of the atom." The words seemed strangely prophetic to-day.

The classics were, he believed, more than ever needed now, and more than ever relevant. The same experiences that made Virgil more real to us contributed no less to our understandings of Greek literature, especially of the tragedians. The pathos of Euripides, the serenity and artistic perfection of Sophocles, and above all the prophetic grandeur and deep human sympathy of Aeschylus, stood out against a background of insecurity and war, in the midst of which they lived. To read the tragedies in times of war and crisis was to see a deeper significance in them and feel a closer kinship with the writers.

The greatest of them all, the Agamemnon, was no longer for us just a play about an unfaithful wife and a murdered husband. It was a dramatic and infinitely sympathetic presentment of what war, even successful war, meant in the way of unhappiness to all sorts and conditions of men and women, to the soldiers at the front, to deserted wives at home, to old men like the poet himself, left behind while the young went out to fight, to all who waited anxiously for news, to the homes to which sons and husbands would never return, to captive women whose unregarded fate was more pitiful and tragic than the death of a victorious king in the hour of his triumph.

Aeschylus, like Virgil, wrote from personal experience which to-day we could in great measure share. To read the two poets was to be brought into direct contact with men who were born into a troubled and unstable world yet never lost their vision of beauty or their faith in the potential greatness of the spirit of man. So much the more must we regret anything that lessened the number of their possible readers.

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office.

	Price	*Post*
Colonial Office:		
Organisation of the Colonial Service. (Colonial No. 197)	0 2	0 3
Post-War Training for the Colonial Service. Report of a Committee (Chairman: The Duke of Devonshire, K.G., M.B.E.) appointed by the Secretary of State for the Colonies. February, 1945. (Colonial No. 198.) (58-198)	0 9	0 11
Statutory Rules and Orders, 1946:		
731. Penicillin (Control) (No. 1) Order. May 21st. (Published May 24th, 1946.)	0 1	0 2
Command Papers (Session 1945-46):		
(6824) Scientific Man-power. Report of a Committee (Chairman: Sir Alan Barlow, Bart., K.C.B., K.B.E.) appointed by the Lord President of the Council. April 13th, 1946	0 6	0 7

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

Notice to Correspondents

The Editorial Committee regrets that, the paper supply situation having deteriorated, it has become necessary to ask correspondents again to accept a limitation on the length of letters submitted for publication. Accordingly, contributors to our Correspondence Columns are requested to note that, until further intimation is made, their communications must not exceed 350 words.

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TUBERCULIN TESTING

Sir,—Regarding your correspondent's enquiry on the above subject perhaps the following suggestion will assist him.

When testing a herd for the first time, using the double intradermal tuberculin test, the final reading should take place *after* the 72nd hour.

It has been my experience that up to 10 per cent. of adult cattle do not react at the 72nd hour the first time they are tested but show a definite reaction about eight hours later. At subsequent tests these animals will react at the 72nd hour.

I am assuming, of course, that there has been no spread of infection between the tests.

Yours faithfully,

23, Bridge Street, Rothesay, Scotland. R. R. Moodie.

May 28th, 1946.

Sir,—In your issue of the 25th inst., I read that Mr. Searle is still in doubt regarding the finding of more reactors at the Ministry's official test than has been found at the last private test. Might I suggest the careful examination of three things, *viz.*:—

1. The expiry date of tuberculin used.
2. The technique adopted at the test.
3. The interpretation of the reaction swellings at 48 and 72 hours.

Yours faithfully,

Alnwick W. A. Doughty.

May 30th, 1946.

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INTERCHANGE OF ENGLISH-FRENCH CHILDREN

Sir,—At the request of a French veterinary practitioner and of many of his colleagues in practice, we are endeavouring to arrange a mutual exchange of the children of practitioners between this country and France. We have requests from some 30 French practitioners for English children to whom they wish to extend cordial hospitality. So far as possible we are trying to arrange travel so that children from the North of this country shall be quartered in the North of France and similarly those from the South.

Naturally we wish to reciprocate this friendly gesture by accommodating a certain number of the sons and daughters of French practitioners.

Will any member who would care for his children to take advantage of this offer this year or any member who will receive into his house a French child, possibly having in view the inability of his own children to travel until next season, please write as soon as possible to either of the undersigned giving us details of age, sex, etc., on receipt of which we will put them in direct contact with a suitable French practitioner.

We are assured that our colleagues will have no difficulty in feeding their guests at least as well as they would be in their own homes.

We are not yet fully aware of the passport regulations for young people but hope to be able to give clear instructions very shortly.

Yours faithfully,

30, Westhampnet Road, Chichester, Sussex. T. J. Tyrrell.

Courtlands Farm, Coolham, Horsham John Pasfield.

May 19th, 1946.